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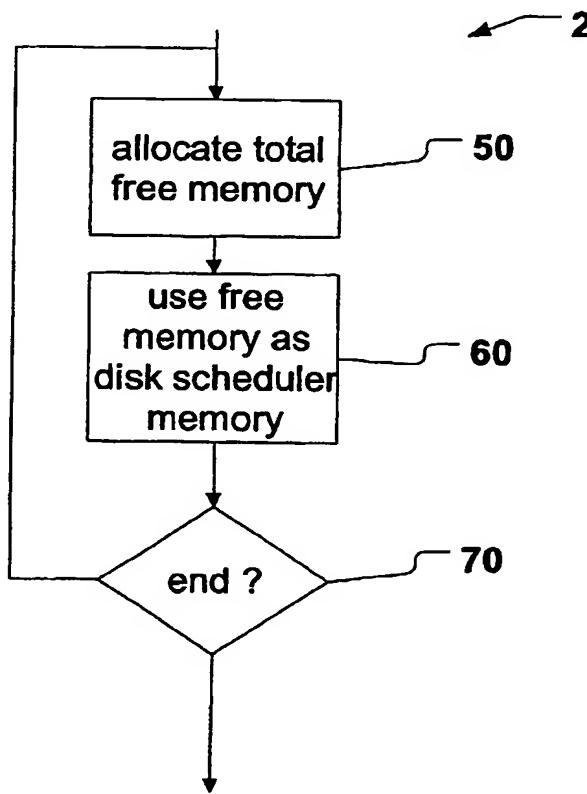
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(54) Title: POWER SAVING METHOD FOR PORTABLE STREAMING DEVICES



(57) Abstract: A method (2) of controlling memory usage in a portable streaming device (100), a portable streaming device (100) and a computer readable medium (110). The portable streaming device (100) comprises at least one memory (102), at least one processing unit (101), and at least one storage device (103) being operatively connected with said memory (102) under control of said processing unit (101). The size of a disk scheduler buffer memory within said memory in said portable streaming device is adaptively maximised by said method (2) at all times. Free memory available within the portable streaming device is continuously allocated (50) and at least a portion of said allocated free memory is designated as disk scheduler buffer memory (60). Thus results improved solid state memory utilisation of the portable streaming device, and due to larger available disk buffer memory size, less start-stop-cycles of the storage device are initiated, which leads to a longer life-cycle of said portable streaming device.



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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 G06F G11B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/045961 A1 (GIBBS ERIC PAUL ET AL) 18 April 2002 (2002-04-18) paragraphs '0011!, '0012!, '0017!, '0018!, '0024!, '0032!, '0050! figures 1,4-9 -----	1-18
A	US 5 953 746 A (CROCKER ET AL) 14 September 1999 (1999-09-14) column 2, lines 57-65 column 3, lines 65,66 figure 2 ----- -/-	1

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Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>OINRU QIU ET AL: "Dynamic power management in a mobile multimedia system with guaranteed quality-of-service" PROCEEDINGS OF THE 38TH. ANNUAL DESIGN AUTOMATION CONFERENCE. (DAC). LAS VEGAS, NV, JUNE 18 - 22, 2001, PROCEEDINGS OF THE DESIGN AUTOMATION CONFERENCE, NEW YORK, NY : ACM, US, vol. CONF. 38, 18 June 2001 (2001-06-18), pages 834-839, XP010552500 ISBN: 1-58113-297-2 page 834, right-hand column, lines 27-35 page 835, left-hand column, lines 28-33 page 835, right-hand column, lines 28-32 page 837, left-hand column, lines 18-23 page 837, left-hand column, lines 34-36 figure 2</p> <p>-----</p>	1

INTERNATIONAL SEARCH REPORT

IB 03/05698

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 2002045961	A1	18-04-2002		NONE
US 5953746	A	14-09-1999	US 5915265 A AU 6636896 A WO 9723830 A1	22-06-1999 17-07-1997 03-07-1997